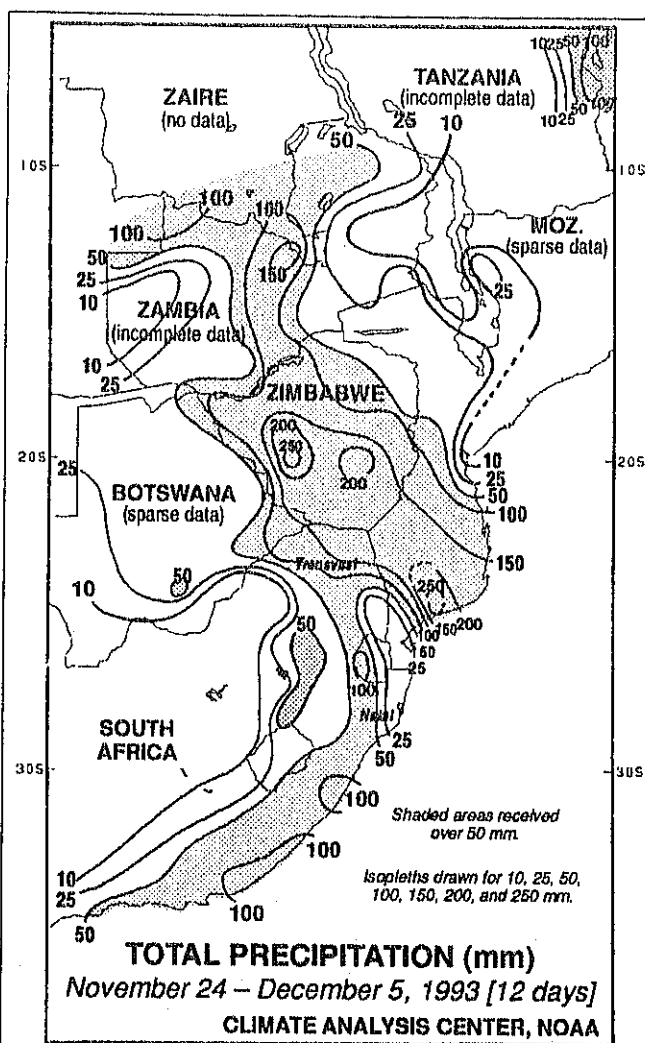


# WEEKLY CLIMATE BULLETIN

No. 93/49

Washington, DC

December 8, 1993



## RENEWED HEAVY RAINS ENHANCE A WET START TO SOUTHERN AFRICA'S 1993-1994 RAINY SEASON.

Since late November, heavy rains fell on large sections of southern Africa, especially along South Africa's southeastern coastline, through central and southern Zimbabwe, in central Zambia, and across southern Mozambique. Most of these areas received over 100 mm of rain during November 24 - December 5, with totals reaching nearly 300 mm in central Zimbabwe and extreme southern Mozambique. The recent spell of wet weather added to the moisture surpluses which began accumulating through much of southern Africa in late September. More than 150% of normal precipitation was measured during the 51-day period beginning September 26 across most of the eastern half of South Africa (except Natal and the Transvaal), across the northeastern half of Botswana, through southern Mozambique, along the northwestern tier of the Transvaal, in all but northeastern Zimbabwe, and across extreme southern Zambia. The largest departures were observed through southern and southwestern Zimbabwe, where 220% - 325% of normal precipitation fell during September 26 - December 5. Most locations across eastern South Africa and southern and western Zimbabwe reported accumulated surpluses of 100 - 270 mm during this period. Between 300 and 380 mm of rain fell on the southern Transvaal, parts of eastern South Africa, a few locations in southwestern Zimbabwe, and isolated parts of northwestern Botswana.



UNITED STATES DEPARTMENT OF COMMERCE  
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION  
NATIONAL WEATHER SERVICE-NATIONAL METEOROLOGICAL CENTER  
**CLIMATE ANALYSIS CENTER**





# GLOBAL CLIMATE HIGHLIGHTS

## MAJOR CLIMATIC EVENTS AND ANOMALIES AS OF DECEMBER 4, 1993

### 1. Southwestern Alaska:

#### WETNESS DEVELOPS.

Up to 40 mm of precipitation fell on the region as six-week moisture surpluses ranged from 50 to 160 mm [WET - 6 weeks].

### 2. West-Central North America:

#### MODERATE PRECIPITATION BRINGS LIMITED RELIEF.

Totals of 60 to 125 mm were reported across most of the region, with 125 to 225 mm along the Pacific Coast and the Washington Cascades. Six-week moisture deficits, however, remained near 270 mm at some locations [DRY - Ending at 15 weeks].

### 3. East-Central South America:

#### STILL UNUSUALLY WET.

As much as 120 mm of rain drenched Uruguay while up to 170 mm soaked north-eastern Argentina. Six-week moisture excesses approached 250 mm in Uruguay and Argentina (see page 2) [WET - 7 weeks].

### 4. Europe:

#### COLD AND DRY CONDITIONS PERSIST.

According to press reports, snow and ice snarled travel in France and Belgium while blizzard conditions prevailed in parts of Croatia and Romania. Temperatures averaged as much as 7°C below normal across much of eastern Europe, with departures reaching -17°C in parts of Russia and the Ukraine [COLD - 4 weeks]. Less than 20 mm of precipitation was reported on most of the continent, although totals approached 50 mm in the United Kingdom and southern Scandinavia. Six-week moisture deficits ranged from 50 to 200 mm [DRY - 7 weeks].

### 5. Greece:

#### ABOVE NORMAL PRECIPITATION CONTINUES.

Moderate precipitation (40 to 50 mm) fell on Greece, where six-week surpluses ranged from 60 to 130 mm. Long-term moisture deficits remain through most of the country, but the recent wet spell has mitigated water shortage problems [WET - 6 weeks].

### 6. Western and Central Asia:

#### COLD AIR REMAINS ENTRENCHED.

Temperatures averaged as much as 18°C below normal in Kazakhstan, and departures ranged from -4°C to -14°C across much of Asia from the Urals eastward to China [COLD - 7 weeks]. Farther south, heavy rain and snow closed roads, damaged property, and triggered avalanches in portions of Iran, according to press reports [Episodic Event].

### 7. East-Central China and Southern Japan:

#### ABNORMALLY WET WEATHER DEVELOPS.

As much as 80 mm of rain soaked east-central China while up to 130 mm drenched southern Japan last week, aggravating several consecutive weeks of above normal precipitation. Moisture surpluses since late October ranged from 50 to 210 mm [WET - 6 weeks].

### 8. Taiwan:

#### PROLONGED DRYNESS CONTINUES.

Although scattered showers yielded up to 60 mm of rain, most of the island received little or no precipitation, and six-week moisture deficits remained near 190 mm [DRY - 25 weeks].

### 9. The Philippines:

#### TYPHOON LOLA LASHES COUNTRY.

Torrential rains, with amounts approaching 200 mm, and winds gusting to 150 kph from Typhoon Lola claimed 35 lives, forced over 15,000 people from their homes, and disrupted transportation across southern Luzon, according to press reports [Episodic Event].

### 10. Thailand, Malaysia, and Singapore:

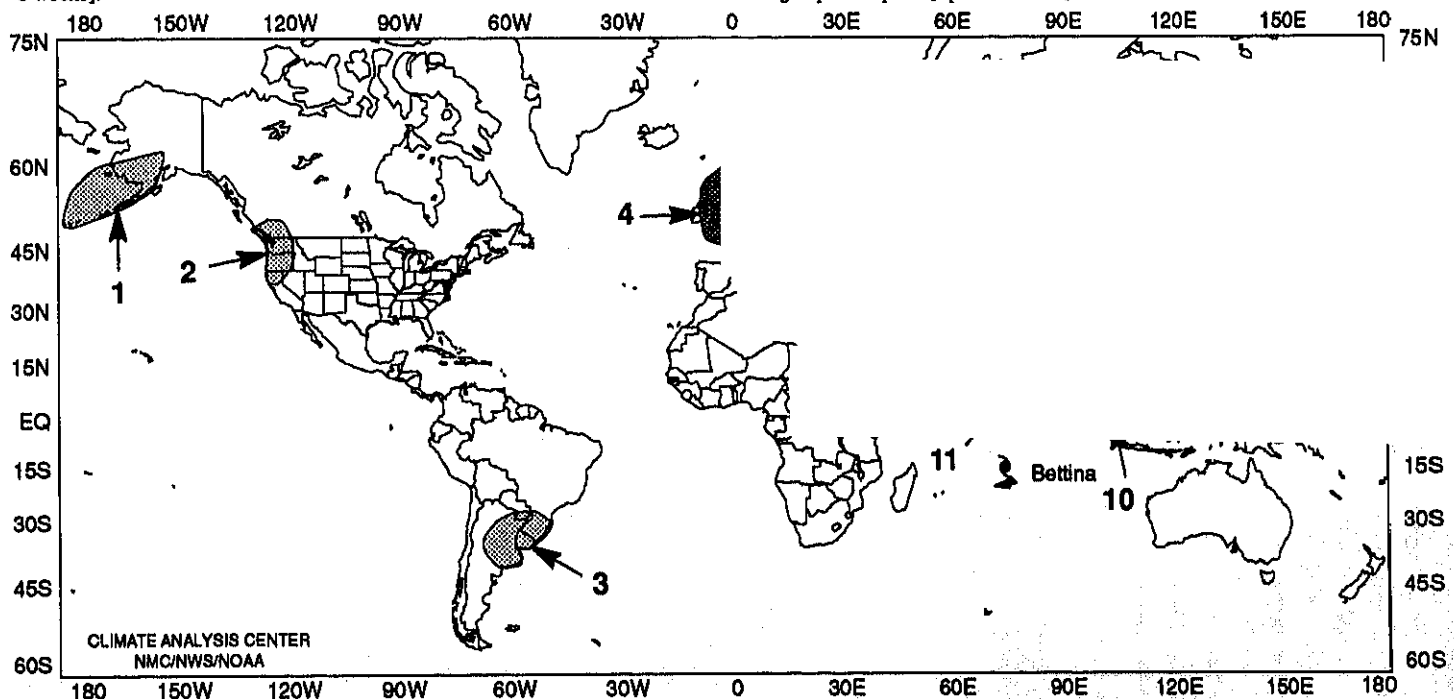
#### HEAVY RAINS CAUSE FLASH FLOODING.

Flash floods claimed several lives, destroyed over 70 homes, and snarled traffic across the region, according to press reports. Rainfall totals for November 27-29 exceeded 500 mm on the southern Isthmus of Kra [Episodic Event].

### 11. Sri Lanka and Southern India:

#### TROPICAL CYCLONE POUNDS REGION.

The third tropical cyclone of the season to hit the state of Tamil Nadu (in southern India) brought up to 200 mm of rain and strong winds which claimed at least 70 lives, left thousands homeless, triggered landslides, and halted rail service, according to press reports [Episodic Event].



### EXPLANATION

TEXT: Approximate duration of anomalies is in brackets. Precipitation amounts and temperature departures are this week's values.

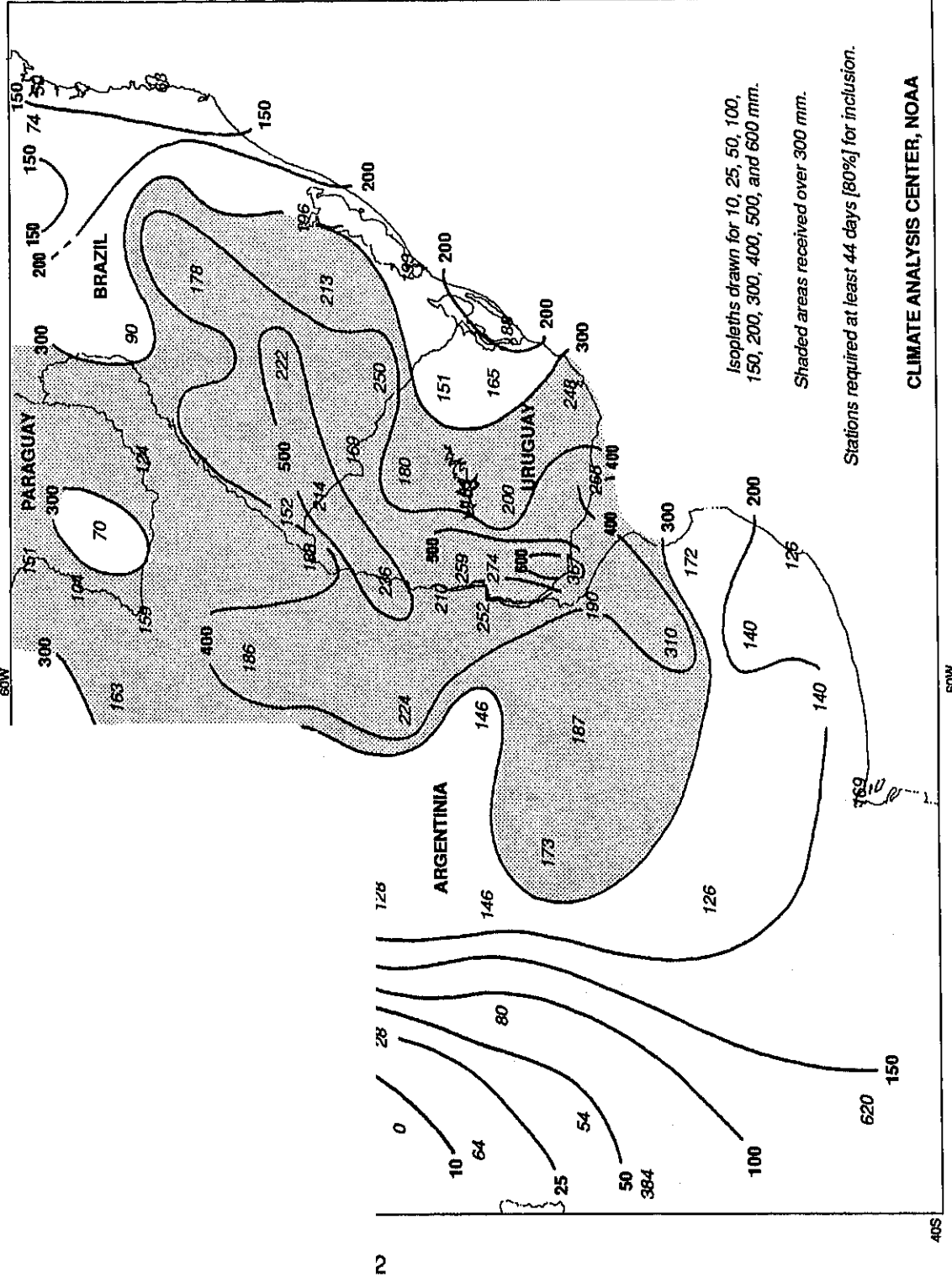
MAP: Approximate locations of major anomalies and episodic events are shown. See other maps in this Bulletin for current two week temperature anomalies, four week precipitation anomalies, long-term anomalies, and other details.

# HIGHLIGHTS FEATURE

## OF NORMAL PRECIPITATION

PRECIPITATION (mm)

December 5, 1993 [55 days]



ABUNDANT RAINS SOAK EAST-CENTRAL SOUTH AMERICA SINCE THE START OF THE 1993-1994 WET SEASON. Since October 12, moderate to heavy rains consistently fell from north-central Argentina eastward across southern Paraguay, Uruguay, and extreme southern Brazil. Totals for the 55-day period exceeded 300 mm from northeastern Argentina eastward into extreme southern Brazil, with amounts over 500 mm recorded along the western tier of Uruguay and in adjacent sections of southern Brazil and Argentina. The 300 - 690 mm totals represented over twice the normal rainfall through much of the aforementioned area while lesser amounts (50 - 150 mm) were between three and six times the normal in southwestern sections of the region (near central Argentina). Accumulated surpluses during the period ranged up to 500 mm in southwestern Uruguay. Press reports indicate that the heavy rains have delayed crop planting across the region, and may have washed out some planted crops. In sharp contrast, a prolonged drought across central and northern Brazil (north of map) is affecting the nation's cocoa crop, according to press reports.

# UNITED STATES WEEKLY CLIMATE HIGHLIGHTS

FOR THE WEEK OF NOVEMBER 28 – DECEMBER 4, 1993

Two storm systems struck portions of the eastern half of the nation with strong winds and heavy rains that generated widespread flash flooding. The first storm battered the Northeast and mid-Atlantic at the start of the week, generating gale winds and heavy surf along the middle and northern Atlantic Seaboard and locally torrential downpours of up to eight inches in 24 hours (some of which fell on Saturday, November 27). Winds in excess of 50 mph downed numerous large trees near Malone, NY, while roofs of condominiums were blown off in Bridgeport, CT. In Pennsylvania, the flooding of Conewago Creek near East Berlin forced the evacuation of 35 homes, and several people were rescued from flood waters in Bedford County. In Maryland, the Baltimore-Washington Parkway was closed for more than eight hours by heavy rain, according to press reports. The second storm developed over the southern Plains late Thursday and then rapidly moved northeastward, spreading heavy rain and severe weather from the southeastern Plains and the lower and middle Mississippi Valley to the northern and middle Atlantic Coast. Between two and nine inches of rain inundated much of the area from northeastern Texas and southeastern Oklahoma eastward to the central and southern Appalachians, sending rivers and creeks out of their banks. Wind from one thunderstorm damaged several homes near Moreauville, LA, resulting in three injuries, while trees were downed and buildings damaged in Oakdale, LA, according to press reports. Tornadoes and strong thunderstorm wind gusts caused minor damage in McComb, MS, Jefferson MS, Collins, MS, and Wetumpka, AL. Rising creeks in southeastern Kentucky inundated roadways in Knox and Clay Counties, stranding residents and flooding some homes. Elsewhere, a series of Pacific Ocean storms drenched much of the northern and central Pacific Seaboard with two to eight inches of needed precipitation, lessening the affects of the region's slow start to the 1993-94 wet season.

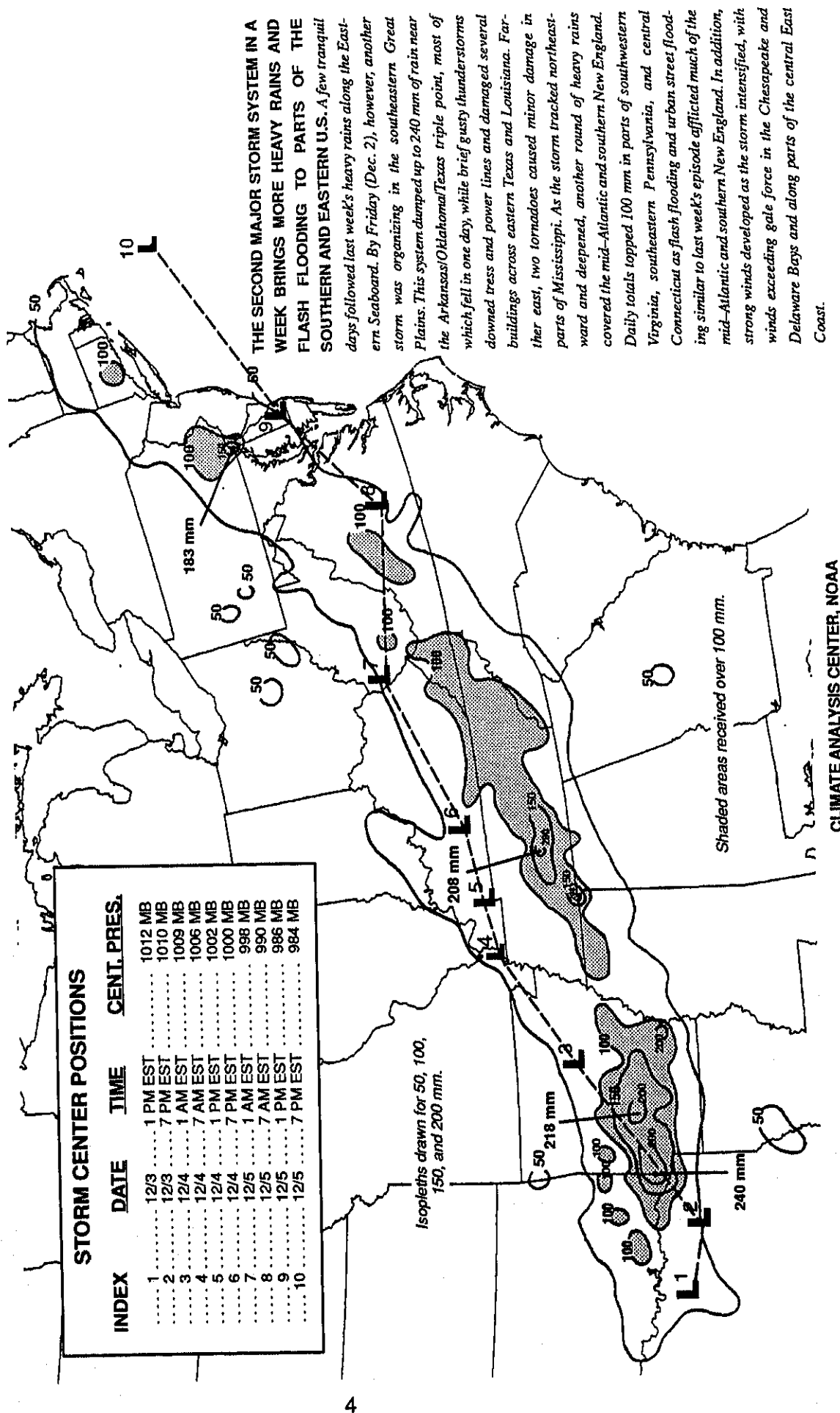
At the beginning of the week, a strong storm system buffeted the Northeast and mid-Atlantic with strong winds and heavy rain before moving into the Atlantic Ocean. Elsewhere, lake-effect snows left locally heavy accumulations across Wisconsin and northern Illinois on Sunday and over western New York on Monday. Meanwhile, an upper level disturbance dusted the middle Mississippi and lower Ohio Valleys with light snow. Farther west, rain and a wintry mixture of precipitation dampened the Pacific Northwest ahead of an advancing Pacific frontal system. By Tuesday evening, the Pacific frontal system pushed into the northern High Plains, central Rockies, and southern Great Basin, causing widespread precipitation in the Far West and the northern and central portions of the Intermountain West and Rockies. To the east, a large high pressure system brought mild and tranquil weather to the rest of the nation in the wake of the early-week storm.

At mid-week, the western frontal system trekked into the central portions of the nation, bringing rain to eastern Oklahoma and freezing rain to parts of the upper and middle Mississippi Valley. In the Northwest, a second Pacific front generated more widespread precipitation, with heavy snow recorded in the higher elevations. Nearly a foot of snow blanketed the central mountains of

Idaho. During the latter part of the week, the front in the central portion of the nation moved quickly eastward, spreading rain from the Plains to New England before dissipating on Friday. Meanwhile, the frontal system in the Northwest sped southeastward, producing scattered precipitation over the northern and central Rockies and northern High Plains on Thursday, heavy to moderate rains in the southeastern Plains and lower and middle Mississippi, lower Ohio, and Tennessee Valleys on Friday, and widespread rain with locally heavy amounts to much of the eastern half of the nation on Saturday. At week's end, a third Pacific front swept inland, generating scattered rain (snow in the higher elevations) over the Northwest, northern California, and the northern Rockies while the eastern storm system continued to bring windy and rainy weather from the Ohio Valley to the Northeast.

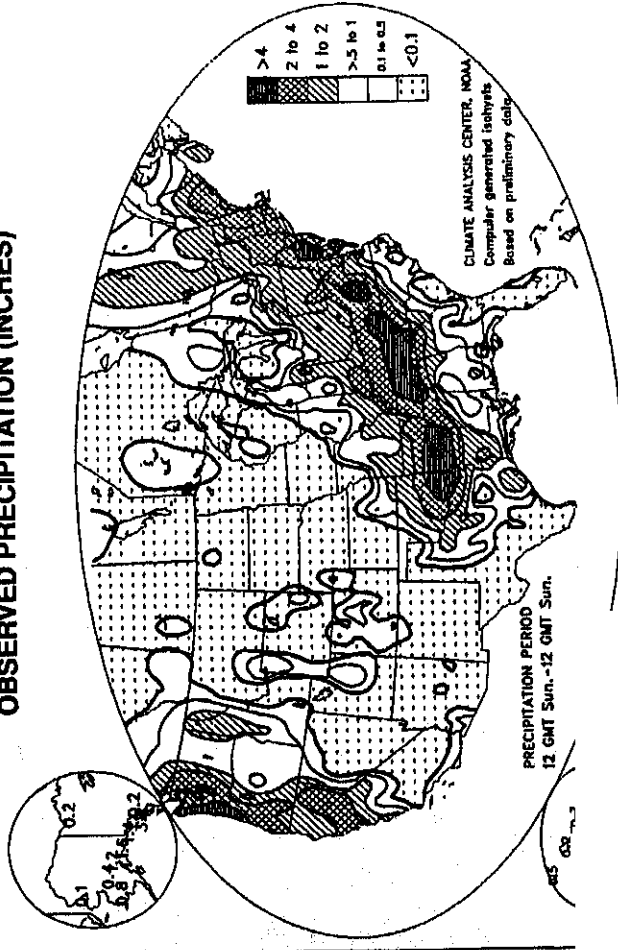
According to the River Forecast Centers, the greatest weekly precipitation totals (between two and nine inches) fell from the middle Red River Valley of Texas and Oklahoma eastward to the Tennessee Valley, northeastward to the northern portions of the mid-Atlantic, and northward across New England. In addition, totals exceeding two inches were reported across northern California, western Oregon, and western Washington, with similar more scattered amounts over the middle Mississippi Valleys, the northern Intermountain West, the coast, southeastern Alaska, the Big Island of Hawaii, and the remainders of the lower Mississippi Valley and the northern and central portions of the Pacific Northwest. To moderate amounts were measured in the northern Rockies, the northern Plains, central Alaska, and the remainders of the Pacific Northwest, northern California, the southeastern Plains, the lower southern Alaska, Hawaii, and the nation east of the Rockies. Little or no precipitation was reported in southern California, the Great Basin, the desert Southwest, the southern Rockies, the central and southern High Plains, the upper Mississippi and middle Missouri Valleys, and northern Alaska.

## TOTAL PRECIPITATION (mm) December 2 - 5, 1993

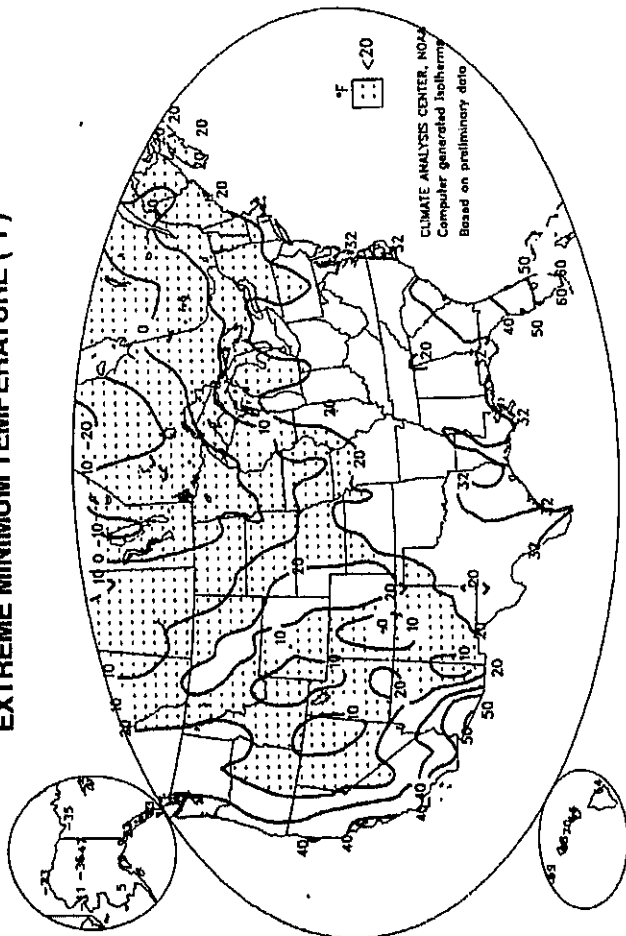


# UNITED STATES WEEKLY CLIMATE CONDITIONS (November 28 – December 4, 1993)

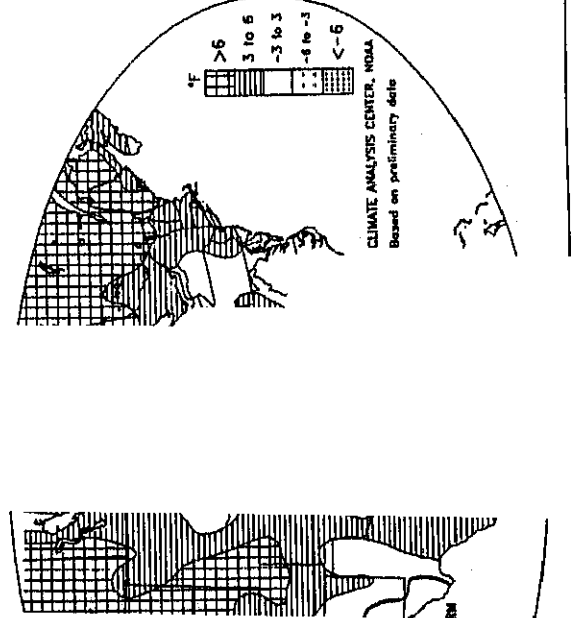
OBSERVED PRECIPITATION (INCHES)



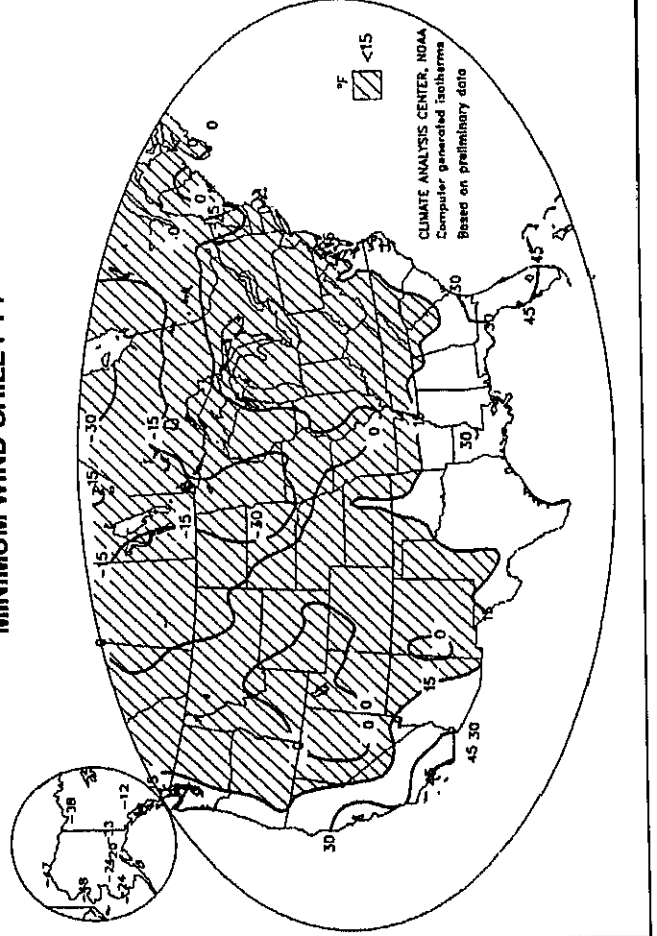
EXTREME MINIMUM TEMPERATURE (°F)



DIFFERENCE OF AVERAGE TEMPERATURE FROM NORMAL (°F)

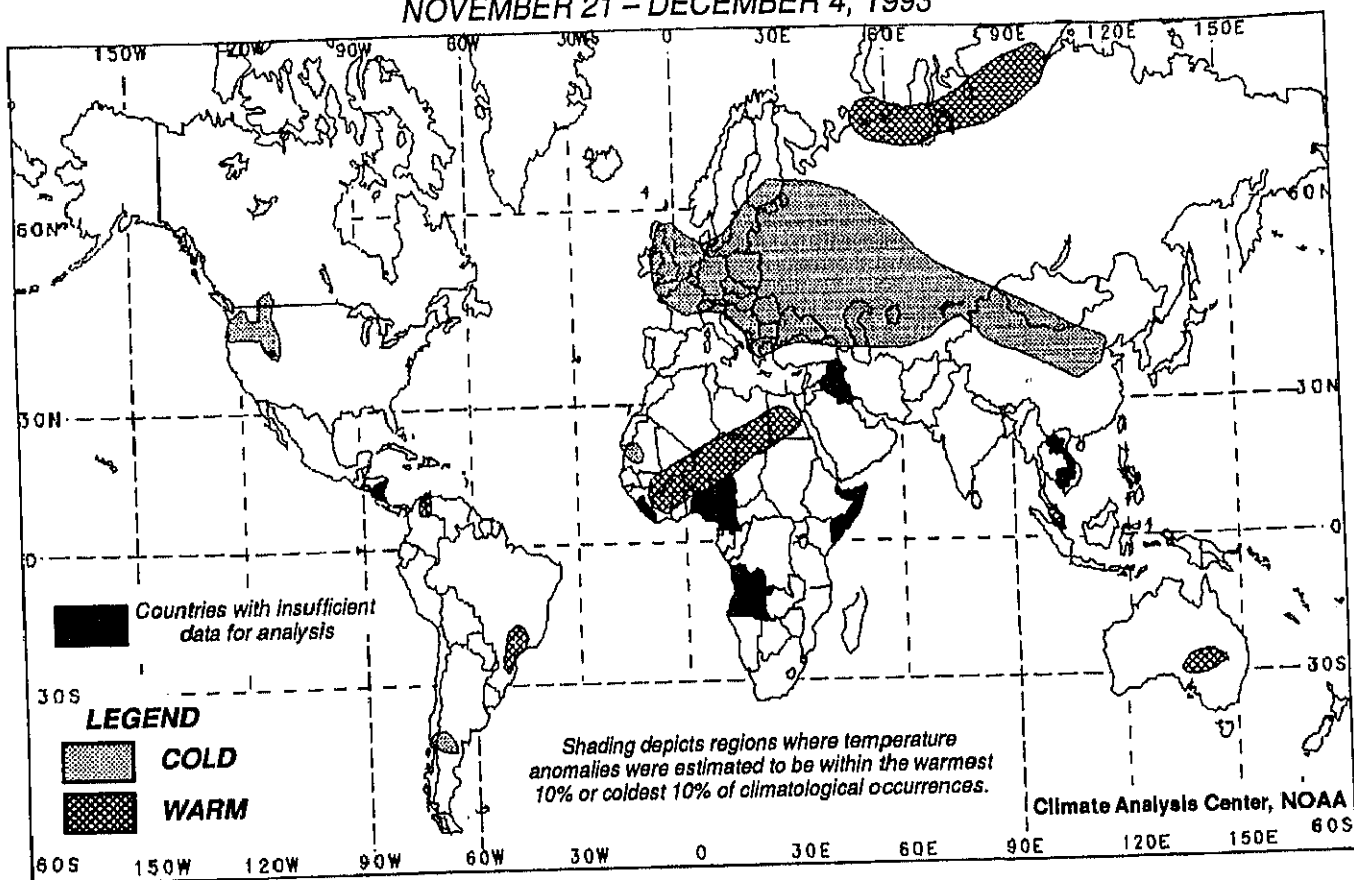


MINIMUM WIND CHILL (°F)



## TWO-WEEK GLOBAL TEMPERATURE ANOMALIES

NOVEMBER 21 – DECEMBER 4, 1993



## FOUR-WEEK GLOBAL PRECIPITATION ANOMALIES

NOVEMBER 7 – DECEMBER 4, 1993

